



Cancer care and its financial impact in Venezuela. A look from critical epidemiology

Atención oncológica y su impacto financiero en Venezuela. Una mirada desde la epidemiología crítica

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ABSTRACT

The rapid scientific advancement of oncology has led to an increase in patient survival, which has translated into a significant increase in cancer care-related expenses. In Venezuela, by 2022, more than 62,000 new cases were recorded in the country, as well as 31,000 deaths, generating a significant economic burden that has not been adequately studied. Objective: To analyze the financial impact of cancer care in Venezuela from the perspective of critical epidemiology. Methods: Critical processes related to cancer patient care were identified, and a critical process matrix was then constructed, and the findings obtained from this matrix are reported. Results: The research found that the fragile Venezuelan public health system is marked by high costs of diagnostic procedures and treatments, as well as by shortages of supplies, medications, and a lack of specialized healthcare personnel, which has a strong negative economic impact on family budgets. Conclusions: Venezuelan cancer patients face serious challenges in accessing quality medical care, which contributes to the growth of existing inequalities, limits equitable access to cancer care, and significantly increases the costs of cancer care.

Keywords: Cancer, Oncological care, Financial impact, Financial Toxicity, Critical epidemiology.

RESUMEN

El rápido avance a nivel científico que ha experimentado la oncología, ha originado un aumento en la sobrevivencia de estos pacientes, lo cual se ha traducido en un incremento importante de los gastos relacionados con la atención del cáncer. En Venezuela para el año 2022, se registraron más de 62 mil nuevos casos en el país, así como 31 mil defunciones, lo que generó una carga económica significativa que no ha sido adecuadamente estudiada. Objetivo: analizar el impacto financiero de la atención oncológica en Venezuela, desde la perspectiva de la epidemiología crítica. Métodos: Se identificaron los procesos críticos relacionados con la atención del paciente oncológico, seguidamente se construyó una matriz de procesos críticos, para luego reportar los hallazgos obtenidos de esa matriz. Resultados: La investigación encontró que el frágil sistema público de salud venezolano está marcado por los altos costos de los procedimientos diagnósticos, y tratamientos; así como, por la escasez de insumos, medicamentos, y la falta de personal sanitario especializado, lo que causa un fuerte impacto económico negativo en los presupuestos de las familias. Conclusiones: Los pacientes oncológicos venezolanos enfrentan serios desafíos para acceder a una atención médica de calidad, lo que favorece el crecimiento de las desigualdades existentes, limita el acceso equitativo a la atención oncológica, e incrementa significativamente los costos de la atención médica del cáncer.

Palabras clave: Cáncer, Atención oncológica, Impacto financiero, Toxicidad financiera, Epidemiología crítica.

INTRODUCTION

The International Agency for Research on Cancer (IARC),(1)when specified by country, the statistics provided by the Global Cancer Observatory (GLOBOCAN) indicate that for the year 2022, a little more than 62 thousand new cases of cancer were registered, as well as 31 thousand deaths in Venezuela, with a population of around 28 million inhabitants, which corresponds to 0,35 % of the world population, according to the World Bank (WB)(2)and the United Nations Population Division. (3)This represented 4,1 % of the total number of new cases and 4,2 % of deaths from cancer when compared to the number of cases and deaths in Latin America and the Caribbean. This region had 1,5 million new diagnoses and 750 000 deaths. When contrasting Venezuelan statistics with the total number of incidences and deaths worldwide, where in the same year, 19 million cases were diagnosed, and deaths attributable to cancer were approximately 10 million, Venezuela accounted for 0,3 % of cases and 0,32 % of deaths.(1)

For the World Health Organisation (WHO),(4)cancer is a significant public health problem, as it is one of the leading causes of morbidity worldwide, as well as being the leading cause of mortality, affecting the population regardless of race, sex, culture, educational level, age or financial status. It also substantially impacts nations' economies and the pockets of patients and their families.

In oncology, recent rapid scientific advances, new diagnostic tools, and new therapeutic weapons have led to increased survival of cancer patients in most high- and middle-income countries, translating into a significant increase in cancer-related expenditures.(4)

One of the first studies, conducted in 2008 by the American Cancer Society (ACS),(5)demonstrated the global economic impact of cancer on society. This study found that the total amount spent on death and disability was \$895 billion (USD), that research did not include direct medical costs, and that the figure represented 1,5 % of the world's Gross Domestic Product (GDP). As can be seen, this publication demonstrated that cancer has a devastating economic impact on the economy of any nation.(5)

In Latin America, we have a particular situation that differs from North America and Europe, as there are nations that can be considered high-income, others can be regarded as middle-income, and there is a set of countries with income. However, the financial impact of cancer on all Latin American economies is enormous. Research(6)conducted in 12 Latin American countries reported that cancer costs the economies of these nations USD 4,2 billion annually. More recent data indicate that the economic impact of cancer care in these countries could be USD 2 billion.(7,8)

In our country, there are no studies that evaluate the economic impact or financial toxicity of cancer in Venezuelan society. However, it is well known that it is difficult for patients and their families to obtain oncological drugs or to receive the radiotherapy sessions indicated as part of their treatment.

To understand this problem in depth, it is necessary to approach it from the perspective of critical epidemiology,(9,10) which considers health a complex and multidimensional process in constant change and contradiction, encompassing the general, the particular, and the individual. Social factors derived from a complex and multifaceted structure determine the health disease process. Therefore, to systematically understand the diversity and hierarchy of processes that influence the relationships determining health and illness, it is necessary to consider their dialectical movement in the abovementioned dimensions, such as the general, the particular, and the individual.

The matrix of critical processes includes economic, social, political, and cultural elements that can benefit or harm health in a specific social and territorial space. Although this paper does not evaluate all the aspects involved in cancer care in Venezuela and the economic impact they may have on patients and their families, it prioritizes those with the most significant weight in determining living and health conditions. In any case, the analysis of the living and health conditions of a population is based on the recognition that vital processes are transformed by historical, social, and cultural practice,(11)which implies a historical, social, economic, political, geographical, environmental, demographic and territorial contextualization, in which the implicit and explicit relationships between these living conditions and the health-illness process are recognized.

For the above reasons, it was decided to create a matrix of critical processes to identify why cancer care in Venezuela will financially impact the economic budget of patients and their families by February 2024.

METHOD

First, the critical processes related to cancer patient care in Venezuela were identified. Second,

a matrix of essential processes was constructed (see annexes). Third, the findings of this matrix of critical processes were reported. To obtain the information, primary and secondary documentary sources were used, such as documentary reviews, reports from national and international organizations, reports and/or complaints from non-governmental organizations (NGOs), complaints from patients and families in the press, or through social networks such as Instagram, X (formerly Twitter), Telegram, among others.

In the matrix of critical processes, the domain or general dimension corresponds to the dimension constituted by the general productive system, in our case, the productive mode of 21st-century socialism. A nation's productive mode also called the productive process, defines the social patterns assumed as universal or general laws. It makes it the essence of determining all dimensions and allows it to delimit the movements of particular processes and singular processes. This means that what is general, reiterated, relatively stable, and common to every situation of health and illness is dialectically dependent on general laws regulating the material bases of society that determine social structure, development, and social change.(9)

The particular domain corresponds to the processes of social production and social reproduction of social groups. It is the link between the singular and the general. In this domain, the fundamental features and laws of a society's living conditions are defined, which delimit the movement of the particular phenomena occurring within this community. The ways of life, including the mechanisms of production and accumulation of power, are established and reproduced from this specific domain.(9)

The singular domain is closely related to the condition and situation of the individual in whom particular and general social determinations are manifested. This dimension regulates the individual, not as an isolated entity but as belonging to a social group whose living conditions are influenced by the existing productive system. The health-disease process manifests itself in this subject, defined by their biological, psychological, cultural, historical, and social characteristics.(9)

RESULTS

On analyzing the results, it can be seen that patients and their families certainly have difficulties gaining expeditious access to their oncological treatments, either because the cost is very high and they cannot afford them or because they are not available in public care centers.

From the critical process of meta-inference, proposed by Jaime Breilh,(9,10) and from the four S's, such as Sustainability, Sovereignty, Solidarity, and Security, when analyzing the general domain, we distinguish how the consolidation of capitalism as a productive system, based on private ownership of the means of production and market freedom, has generated favorable conditions for the economic development of the private sector. This mode of production favors the concentration of large amounts of capital by pharmaceutical and medical technology companies,(13,14) which facilitates the strengthening of the neoliberal model in the health sector, allowing the rapid and accelerated growth of the private health sector,(15) to the detriment of the public sector, with a loss not only in the quality of care but also in the decrease in the number of public health centers,(16,17) this is a departure from the provisions of article 84 of our Magna Carta,(18) as well as from the first, second and third Plan of the Nation.(12,19,20)

In addition, international legislation(21,22,23,24) favours these companies, with monopolistic patent laws that prevent the development of a similar or generic product at a lower cost. This makes it difficult for middle—and low-income countries to gain timely access to new technologies and drugs.

On the other hand, and in addition to the above, since 2008, Venezuela has been going through a prolonged economic crisis, the origin of which is mainly attributed to the fall in international oil prices. The situation worsened in 2014, when the country was subjected to economic sanctions that exacerbated the investment and development landscape, causing a decline in national revenues and providing basic services to the population.(25,26) Sanctions intensified in 2017, restricting the state's access to funds abroad and compromising its ability to import medical supplies, medicines, and health equipment, further exacerbating the crisis.(26)

This situation has reached unprecedented levels in the country's history and is reflected in a substantial deterioration in social welfare. Although all areas of the health system have been affected, the public health sector has been the most severely affected, with cancer care being one of the most vulnerable and negatively impacted areas.(27)

Similarly, the absence of public policies, public policies that are not evaluated, or public policies that contribute to the expansion of the current productive system result in widening inequality

gaps in health care.(28,29)

When we detail the particular dimension or domain and analyze and evaluate the conditions of the four S's, we see how the accelerated economic growth of the private health sector,(15,16,17) plus the stagnation of the public health sector,(16,17) associated with an essential element such as the lack or scarcity of epidemiological data from official sources,(30) have limited the population's access to health, because they have few options for low-cost health care,(31) resulting in an unequal distribution of health care; This results in an unequal distribution of health care, as well as inequitable health segregation, or social segregation of health care.(28)

This segregation in health care restricts the options available to low and middle-income patients to access new diagnostic technologies and new cancer drugs,(32,33) further widening the gap in health inequities.(28)

In addition to the permanent crisis in the public health system, there are low salaries for health professionals,(31,34) precarious working conditions,(35,36) work overload,(37) the failure, absence, or shortage of supplies,(38,39,40) which forces these health professionals to consider seeking new professional options for better personal and family development.(36,41) Most migrate to the private sector; others go abroad, and a small percentage change economic activity.(35,42,43) This causes a decrease in human resources in public institutions, which leads to an overload of work for staff who, due to their roots, vocation, or attachment to the health center, decide to remain.(37)

This work overload leads to a deficit in the quality of care, which manifests itself in a shortage of specialized consultations, appointments for medical care, diagnostic studies, or the administration of oncological treatments, which take too long, which can cause the oncological disease to progress to a higher stage.(44) The patient and family are forced to migrate to a private facility to avoid this.

When assessing the conditions from the individual domain, migration of the patient to the private sector leads to an increase in unbudgeted expenses, an increase in health care costs, and an increase in out-of-pocket expenses and fees, which immediately causes a detriment to the family budget, as well as the rapid suffocation of this financial income.(45) The patient and his family suffer a loss of socioeconomic status, which leads them to evaluate new sources of income(45) or the sale of a movable or immovable asset to afford the new health expenses.

As a result of the above, this family group develops a sense of insecurity and vulnerability, which favors the appearance of symptoms of anxiety and depression, which, if left untreated, causes more health expenses to evolve into a deterioration of mental health.(46)

CONCLUSIONS

Based on the findings of the critical processes matrix, it can be concluded that cancer care in Venezuela by 2024 will negatively impact the budget of any Venezuelan family. These results reveal that both patients and their families face significant difficulties in accessing cancer treatments due to the high costs and lack of availability of these treatments in public care centers.

The concentration of large amounts of capital by pharmaceutical and medical technology companies, favored by the existing production model, has allowed for the accelerated growth of the private health sector to the detriment of the public sector. In addition, international legislation favorable to pharmaceutical transnationals and the lack of adequate public policies contribute to widening inequality gaps, creating an unequal distribution of medical services, affecting the quality of care, and limiting access to health care for the least favored population.

This situation is aggravated by the crisis in the public health system, low salaries for health professionals, and precarious working conditions, which are causing talent to migrate to the private sector. The resulting work overload affects the quality of care in the public sector, leading to delays in diagnosis and treatment and forcing patients to seek options in the private sector.

Migration to the private sector leads to a significant increase in healthcare costs, which adversely affects family budgets and socioeconomic status. This financial pressure, also called financial toxicity or negative economic impact, can lead to insecurity, vulnerability, and mental health problems for patients and their families, which in turn increases health costs and impairs quality of life.

The critical processes identified in oncology care in Venezuela in February 2024 generate inequities and financial difficulties for patients and their families. Urgent action is required to address these problems and guarantee equitable and adequate access to the necessary oncology treatments.

Proposal

Addressing the problems affecting cancer care in Venezuela in an efficient and effective manner is urgent since the complaints of patients and their families are not addressed in a timely manner.

To know the scope of the National Programme to Combat Cancer, its design, its planning, and the organization of the National Cancer Institute, an entity created in 2012 to coordinate oncological public policies in Venezuela.

I request the Ministry of Popular Power for Health to provide information on this cancer care program's general objectives, lines of action, strategies, and specific actions.

Similarly, I will request the organization and structure of the National Cancer Institute, its goals, how it will integrate the care of cancer patients with teaching and research, and the publication of the corresponding epidemiological bulletins. I will also request the results of the evaluation carried out in May 2023 by the Integrated Mission to Evaluate the Cancer Therapy Control Programme in Venezuela (ImPACT) of the National Cancer Programme.

Demand that the relevant body comply with Article 84 of our Magna Carta, which guarantees free health care.

Work on the institutional unification of the health system to organize the available resources more efficiently.

Guarantee the provision of resources and supplies for cancer care centers.

Establish mechanisms for importing and distributing not only oncological treatments but also the resources needed for anatomopathological diagnoses, diagnostic imaging, radiotherapy, and nuclear medicine.

Evaluate the possibility of making agreements with international organizations and providing technological resources, new drugs, and spare parts for equipment that requires maintenance, or that is damaged or has operational failures.

Strengthen the public health system by investing in infrastructure, medical equipment, and training of health personnel specialized in oncology.

Increase salaries for health sector workers to avoid the drain of this resource to the private sector.

Verify the veracity of the complaints expressed on social networks and in the country's different newspapers.

Generate a matrix of opinion in the press and social networks to make the problem visible.

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ANNEXES

Table 1. Critical processes metainference dimensions (general)

Sustainability	Sovereignty	Solidarity	Security
1.1 Consolidation of the productive system, based on private ownership of the means of production and market freedom, capitalism.	2.1 International dependency relations. 2.1.b Economic sanctions. 2.1.c NGO complaints and press reports.	3.1 Concentration of large capital by pharmaceutical or medical technology companies. 3.1.b Reports, reports and macroeconomic data from the World Bank and the International Monetary Fund.	4.1 Rapid and accelerated growth of the private health sector. 4.1.B Annual reports of Fedecámaras and Consecomerio.
1.2 Favours the private health sector. To the detriment of the public sector. RESOURCES. 1.2.b NGO complaints and press reports.	2.2 Model imposed by international agencies World Bank, IMF. 2.2.b Press reports.	3.2 Easy development of the neo-liberal model with wider segregation between sectors. 3.2.b Report and NGO reports.	4.2 Loss of quality of care in the public sector. 4.2.b Complaints from NGOs.
1.3 Absence of public policies. Or public policies without evaluation. 1.3.b NGO complaints and press reports.	2.3 Inequitable policies, unequal distribution of inputs. 2.3.b PAHO report and NGO reports.	3.3 Monopoly patents, which prevent the development of a similar product. 3.3.b Existing laws regarding patents, new drug development and intellectual property law.	4.3 Neoliberalism, Privatisation, Discrimination.
1.4 Policies that favour the expansion of the current productive system, capitalism. 1.4.b Denouncements by NGOs and press reports.	2.4 Growth in inequities in health care. 2.4.b PAHO Reports.	3.4 Difficult access to new drugs, technologies, among others. 3.4.b PAHO reports, and NGO reports	4.4 Epidemiological misinformation. 4.4.b NGO reports. MPPS epidemiological bulletins.
1.5 Favourable conditions for private sector economic development.	2.5 Increasing pressures for the privatisation of technological resources, inputs and HR. 2.5.b NGO complaints.	3.5 Growing inequality gaps. 3.5.b PAHO Reports	4.5 Alteration of epidemiological indices. 4.5.b Complaints from NGOs, press, social networks.

Table 2. Critical processes metainference dimensions particular

Sustainability	Sovereignty	Solidarity	Security
5.1 Failure, absence or shortage of resources. 5.1.b Reports from NGOs, Patient and family complaints, complaints from health personnel. Press reports	6.1 Unequal distribution of health care. 6.1.b NGO complaints, PAHO data and reports.	7.1 Inequity in access to health care. 7.1.b NGO complaints, PAHO data and reports.	8.1 Deterioration of the health system. 8.1.b Allegations by NGOs, Press, etc.
5.2 Low wages, poor working conditions. Work overload. 5.2.b Complaints from health workers, press reports, complaints on social networks.	6.2 Limitations in access to health. 6.2.b NGO reports, PAHO data and reports.	7.2 Inequity in access to vital resources. 7.2.b NGO complaints, PAHO data and reports.	8.2 Permanent crisis in the health system. 8.2.b Complaints from NGOs, Press
5.3 Migration of HR to the private sector. Or abroad. 5.3.b Interviews with HR personnel, Direct observation of the phenomenon, Press reports, NGO complaints.	6.3 Social segregation or inequitable segregation in health. 6.3.b NGO complaints, PAHO data and reports.	7.3 Segregation in health care. 7.3.b NGO Complaints	8.3 Work overload. 8.3.b Report of statistics from public and private companies and INPSASEL Report.
5.4 Search for better conditions for personal development. 5.4.b Interviews with health workers, Press and NGO reports.	6.4 Few options for low-cost health care. 6.4.b NGO reports, PAHO data and reports.	7.4 Few options for accessing new treatments. 7.4.b Interviews with relatives and patients.	8.4 Increase in work-related stressors. 8.4.b Report of public and private company statistics and INPSASEL report.
5.5 Search for better conditions for family development. 5.5.b Interviews with health workers, Press and NGO reports.	6.5 Pressures for privatisation of health care	7.5 Economic growth in the private sector. 7.5.b Macroeconomic data, Chamber of Pharmacists and Chamber of Private Clinics report.	8.5 Increase in accidents at work, absenteeism. 8.5.b Report of statistics from public and private companies and INPSASEL report.

Table 3. Critical processes metainference dimensions individual

Sustainability	Sovereignty	Solidarity	Security
9.1 Migration of patients to the private sector. 9.1.b Decrease in morbidity statistics in the hospital sector.	10.1 Decrease or loss of space in the public sector. 10.1.b Complaints from NGOs, patients, in the press and social media.	11.1 Deterioration in the conditions of the public health system. 11.1.b Complaints by NGOs, patients, in the press and social networks.	12.1 Ineffectiveness and inefficiency in the health sector. 12.2.b NGO reports.
9.2 Increase in unbudgeted expenditure. 9.2.b Complaints from patients, in the press, on Instagram and other social networks.	10.2 Increase in private health care facilities. 10.2.b Press releases. Instagram, Podcast.	11.2 Deterioration in access to care. 11.2.b Complaints from NGOs, Press.	12.2 Deterioration of the health system. 12.2.b NGO reports.
9.3 Increase in out-of-pocket costs. 9.3.b Complaints from patients, in the press, Instagram and other social media.	10.3 Increase in the cost of medical care. 10.3.b Reports in the press and on social media.	11.3 Deterioration of relationships. Loss of solidarity. 11.3.b Social Service Report, Interviews with auxiliary health personnel.	12.3 Increased sense of insecurity and vulnerability. 12.3.b Interviews with relatives and patients.
9.4 Deterioration of the family budget. 9.4.b Complaints from patients, in the press, on Instagram and other social networks; Social Service Reports.	10.4 Suffocation of family income. 10.4.b Patient and Family Interviews	11.4 Deterioration of access to a better quality of life. 11.4.b Social Service Report. Interview with patient and relatives.	12.4 Loss of social economic status. 12.4.b Interviews with relatives and patients. Social Service Report.
9.5 Sale of movable or immovable property or vehicle. 9.5.b Social Service Report. Interviews with patients and relatives	10.5 Assessment of new sources of income. 10.5.b Patient and Family Interviews	11.5 Onset of Anxiety Problems, Depression. 11.5.b Clinical History.	12.6 Mental Health Impairment. 12.6.b Medical history.